TREES
Magazine

Spring On a Country Road

Los Angeles for Seventh Western Shade Tree Conference—May 23-25

TREE WOUND DRESSINGS — *Paul E. Tilford*

NEW DISEASES OF NORWAY MAPLES — *P. P. Pirone*

April, 1940

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ALONG THE WAY

With . . . **ED SCANLON**

■ The OCTOBER ISSUE of TREES will be devoted to STREET TREE PLANTING AND CITY FORESTRY PROBLEMS. We'd like some pix of perfect street tree plantings in your home town—perfect as to width of street, planting space, width of parkway in relation to tree species, and lastly, tree form.

* * *

■ *O. V. MATTHEWS of SALEM, ORE., was a welcome visitor again for his second annual visit. He promised a real treat for TREES readers in the October issue.*

* * *

■ *There is something fishy about the SOUTHERN SHADE TREE CONFERENCE. Norm Armstrong, the GREEN COCOANUT KID, sent the accompanying photo*

showing (L. to R.) JEAN BUTTS, BOB THOMPSON, the fish, KARL DRESSEL and NORMIE. The fish were hooked in order L. to R. Looks like Karl got the shorts. Thought they went down there to help DOC NEWINS solve the South's tree problems.

* * *

■ *Of course, even the SATURDAY EVENING POST makes mistakes, but BOB THOMPSON calls attention to a proof-reading error in JOHN McMANMON'S fine article—"For example, BIRTHES, in clumps . . ." He quips—quote—either this is a new variety to me or could it be a typographical error—end quote. Thanks, my HANDSOME friend, but wait till you see the CARTOON on the July cover.*

* * *

■ *MANFRED MEYBERG, president and board of directors of the GERMAIN SEED JERNT in Los Angeles, gets the palm leaf for his steering of the Shade Tree Contest Committee. The splendid publicity for the SEVENTH WESTERN SHADE TREE CONFERENCE in the Los Angeles Evening Herald and Express, is thanks to M. M.*

* * *

■ RAY HEMINGSON, the FROST & HIGGINS REP, and his big brudder OLOF from the tarantula country (TUCSON, ARIZONA) dropped in on Lincoln's Birthday. Ray sure liked our CLIMATE, so nice and warm.

* * *

■ Now here is a man after my own heart, WM. ERDMAN, ASPLUNDH TREE EXPERT CO., OMAHA, NEB., who sent in his offering to the lord of the front office (that's me—not D. M.) and says: "Enclosed you will find order for a 3-year subscription for your Big Little Magazine. Where has it been hiding? We have needed this for a long time."

* * *

THE COVER PICTURE—*Courtesy the Forestry Division, Los Angeles Park Department. Shows a rural road in Santa Clara County, California, embellished with beautiful rows of Prune trees. Without these trees the road would be one of millions.*

■ Had a sad note from GEORGE BOSLER, CHICAGO, ILL. George lost his left limb. We wish you all the luck in the world, GEORGE, in readjusting yourself to conditions created by this unfortunate catastrophe.

* * *

■ REPRESENTATIVE HAMILTON FISH, Member of Congress from Massachusetts, has a proposal that we are for 150 MILLION PER CENT. It is a bill that would make necessary A VOTE OF THE PEOPLE before Americans COULD BE SENT TO WAR out of the Western hemisphere. It seems like the only way to foil these international molly-coddlers who persistently want to stick our nose in the European stink pot.

* * *

■ *TOM LEASE, PARK SUPER of GREAT FALLS, MONTANA, has some beautiful color pix of his parks that we all hope he will show at the SEVENTH WESTERN SHADE TREE CONFERENCE.*

* * *

■ More darn mistakes! BOB WEAKLEY called my attention to a "bull" in the January issue. Had him as president of BOTH the WESTERN and the SOUTHERN SHADE TREE CONFERENCES in the SAME YEAR. Bob remarks he always said he was remarkable—:wo conferences—two everything for heem!

* * *

■ *D. F. HAYMAN (Davey rep., Detroit), Chairman, Publicity Committee of the National Shade Tree Conference, goes for a subscription to TREES. That's good news. But he comes up and tells us that we will have a copy of the Conference publicity material—that's bad news. Give us something original on the Conference, D. F., and even if you don't, WAIT UNTIL YOU SEE THE COVER ON THE JULY ISSUE. A PIP! Very original, too.*

* * *

■ FRED HILDER, BEDFORD, O., landscape "toucher-upper," liked the first volume of my book, "WHAT I KNOW ABOUT TREES," so well that he has requested the publication of another volume. This shall be done, Fred; as a matter of fact, I have put in some intense work during our unusual days here when it rained this winter, working up copy for a special edition for the NATIONAL SHADE TREE CONFERENCE, entitled "WHAT I KNOW ABOUT THE TREES OF MICHIGAN."

* * *

■ *Have had some very interesting letters from MRS. FRANCES KANNOWSKI, SUPERINTENDENT OF PARKS, GRAND FORKS, N. D. The problem of irrigation must be tough out there, or up there. MRS. K. is editing a special section in "PARKS AND RECREATION" next month devoted to city forestry problems. I'll bet it will be swell.*

* * *

■ The Tree Warden of STAMFORD, CONN., EDW. A. CONNELL, has sent us a copy of his 1939 Annual Report. It shows a lot of intelligent activity and here's a gem we gleaned: "It is old but true, that public moneys spent to maintain, must be justified in the worth and value of that which is maintained. I think that there is general agreement that street trees SHOULD BE MAINTAINED AT THE MAXIMUM HEALTH and beauty because they are great natural assets, STABILIZING REALTY VALUES and ATTRACTING DESIRABLE CITIZENS TO A COMMUNITY."

■ Did you ever hear of a "quadruple" play? Here's one—WOLFE TO SCANLON TO ROEWEKAMP TO CORNELL. That is the way the first *Spathodea companulata* came to bloom, about January 1st, for the FIRST TIME IN CALIFORNIA.

DR. H. S. WOLFE of the UNIVERSITY OF FLORIDA sent the seed to YE SCRIBBLER SCANLON, FRED ROEWEKAMP of the L. A. PARK DEPARTMENT propagated the seed—then RALPH CORNELL, LANDSCAPE ARCHITECT SUPER-EXCELLENT, planted one of the tiny specimens on the grounds of the UNIVERSITY OF CALIFORNIA at LOS ANGELES where he is consultant. It bloomed about a year and a half from seed—it's gorgeous but tender—28 deg. is its limit so it looks like a seacoast tree.

Dr. Fairchild in his "The World Was My Garden" calls it the most beautiful flowering tree in the world.

* * *

■ *ED TUOMEY, old DAVEY "SKINNER" from way back when, dropped into the royal sanctum several days ago. Ed left as a member of the WESTERN SHADE TREE CONFERENCE, a subscriber to TREES and still a tree foreman in good standing for the dear old CALIFORNIA HIGHWAY DEPARTMENT.*

* * *

■ Here's GOOD NEWS to you who are planning to attend the SEVENTH WESTERN SHADE TREE CONFERENCE next month in Los Angeles. The Committee has gone in for LOW COSTS. There will be a low registration fee—the banquet will set you back a buck-and-a-half, with a two-bit "bite" for some slam bang entertainment—AND THAT'S ALL, THERE IS NO MORE.

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April, 1940 A Quarterly Journal Volume 3—No. 2

ADVERTISING REPRESENTATIVE—McClanahan & Co., 295 Madison Ave., New York

EDWARD H. SCANLON, Editor

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CORDIALLY YOURS

A NATIONAL ARBOR DAY

With many states having their own date for Arbor Day very little good is accomplished toward the realization of a more intense interest in the public attitude for planting trees.

A national Arbor Day would be an excellent medium for publicity that would help to make people tree conscious. *Trees* proposes to ask the Governors of the States if they will cooperate in proclaiming a common date for every State; in addition to their set date, if any.

If the Governors are willing, this unification should result, eventually, in national recognition of the common date within a few years.

ASLEEP AT THE SWITCH

Without a doubt the profession of Forestry has been the best "press-agented" of all the related professions. The others, Arboriculture, Park Administration, Landscape Architecture have seemingly been "asleep at the switch."

The public through reams of publicity in the daily press, magazine stories and other media has been shown what a tremendous responsibility rests upon the shoulders of Forestry—as regards the present and future of the country. This is as it should be. But what of the other groups?

City Foresters, Park Superintendents, Landscape Architects, and others interested in civic beautification will gather and despair of the seemingly impossible job of securing the cooperation of the citizens in their city for any worthwhile plan to make the city more attractive. This is not difficult to answer. The public must be sold. But that old intangible bromide of appealing to the average citizen or business man's civic pride is just a waste of time. You must go commercial, folks. Appeal to the business man's pocketbook; tell him how beautiful well-planted, well-cared-for streets and parks will increase and stabilize property values; get figures, prove it to him. Get your local paper or papers to cooperate with publicity. Most of them will do it because it has reader interest and it appeals to them *commercially* because of their circulation. Shove trees and beauty down their throat with the sugar-coated pill of commerce.

An old friend once told the Chamber of Commerce in our town, "Commerce follows Beauty, but Beauty never follows commerce." Very true. We know that, but the public must be *sold*.

We have been insensible to the tremendous power of that giant, publicity, and the first, best and easiest place to commence making people beauty and tree conscious is with city street tree plantings and parks. Once this begins to take form, more attention requiring professional aid and advice will be lavished on the home.

One of the finest bits of publicity toward this end is now transpiring in Los Angeles, as a prelude to the Seventh Western Shade Tree Conference. It is a "Shade Tree Contest" conducted by the conference with the cooperation of the Los Angeles Evening Herald and Express, one of the city's three big daily newspapers. This form of publicity is excellent and could be accomplished in every city or town in the country.

STREET TREE DATA FOR THE NATION

Trees has launched a project that should, when completed, be of inestimable value to Park Superintendents, City Foresters, Landscape Architects and others who plan and plant trees on city streets and highways.

It is to be a comprehensive series of nine charts covering the entire country. A chart appeared in the October 1939 issue of *Trees* for Southern California street trees, and the other sections will be treated on the same basis.

The first of the nationwide series to get under way is that for the Northeastern States. Chairman of the Compilation Committee for that section will be Malcolm Milne, City Forester of Rochester, N. Y. Serving on Mr. Milne's committee will be members of the Editorial Board of *Trees*. A. Robert Thompson, Forester, National Park Service; Dr. L. C. Chadwick, Associate Professor of Horticulture, Ohio State University and Executive Secretary of the National Shade Tree Conference; H. Dana Bowers, Highway Landscape Engineer of California; and Dr. Donald Wyman of the Arnold Arboretum. These members will also aid the chairmen for other sectional charts.

As the charts are compiled they will be made public in *Trees*, then later brought together in book form along with pictures of individual specimens, outstanding examples of street tree plantings and data on disease and insect problems, etc. Persons who would care to participate will be mailed a blank chart on which they can record their experiences with trees suitable for street use. The States included in the survey of the Northeastern States Chart are New York, Pennsylvania, Massachusetts, Rhode Island, Maine, Vermont, New Hampshire, and Connecticut. Let us hear from you.

I LOVE A TREE

By SAMUEL N. BAXTER
Arboriculturist—Fairmount Park
Philadelphia, Pa.

When I pass on to my reward,
Whatever that may be,
I'd like my friends to think of me
As one who loved a tree.
I may not have a statesman's poise,
Nor thrill a crowd with speech,
But I can benefit mankind
If I set out a beech.
If I transplant a sapling oak
To rear its mighty head,
'Twill shade and shelter those who come
Long after I am dead.
If in the park I plant an elm,
Where children come to play,
To them 'twill be a childhood shrine
That will not soon decay.
Or if I plant a tree with fruit,
On which the birds may feed,
I've helped to foster feathered friends,
And that's a worthy deed.
For winter, when the days grow short
And spirits may run low,
I'd plant a pine upon the 'scape
'Twould lend a cheering glow.
I'd like a tree to mark the spot
Where I am laid to rest,
To me 'twould be the epitaph
That I would love the best.
And though not carved upon a stone
For those who come to see,
My friends would know that resting here
Is one who loved a tree.

Nicotine Paralyzes Insects

Many gardeners have wondered how a teaspoonful of "Black Leaf 40" in a gallon of water could destroy insects. It does seem like a very small amount of poison, but fortunately not much of this effective produce is needed for the insects it controls. The very tiniest amount of nicotine penetrating the breathing spaces of an insect paralyzes it and causes its death. Without a contact poison such as this, gardeners would have a difficult time with their insect problem.

ODDITREES

EDITOR'S NOTE: *You are invited to send in pictures and a story relating to any odd, freakish or unusual tree in your vicinity.*

African Sausage Tree (*Kigelia Africana*)-(*Bignoniaceae*) This odd looking tree is planted for ornamental purposes in Florida and California; not extensively. In addition to its huge fruit, weighing about fifteen pounds, it has beautiful dark green compound foliage and a most unusual flower. The flower is about two inches across, deep reddish or chocolate brown in color. They open about 5:00 p.m. and drop from the tree the following morning. According to Ralph D. Cornell, who sent us this picture and supplied the information, the trees must be hand pollinated in Honolulu. The picture was taken of a tree on the grounds of the University of Hawaii, Honolulu. Mr. Cornell designed the grounds and is retained as consultant.

Lumbering the Hurricane Crop

By LEO SHAMES
United States Forest Service
Keene, New Hampshire

In September, 1938, a tropical hurricane moved along the Atlantic coast, and instead of turning out to sea as such storms usually do, battered its way through southern and central New England to cause the worst disaster in the history of the region.

Tremendous gusts of wind, aided by the saturating downpour which preceded and accompanied them, uprooted and snapped off an estimated 2,000,000,000 board feet of timber—over five times the annual regional cut. Stands of pine trees suffered most, although in northern New Hampshire and Vermont spruce and hardwood losses were severe, and in Connecticut and Rhode Island the loss was chiefly hardwood.

The damage to woodlands was spotted. It did not depend so much on tree species, size and composition as upon exposure. Where the hurricane swept with its full force, nearly all trees suffered alike.

The fire hazard was immediate and critical. Spread over a region 300 miles long and 100 miles wide from Long Island to Canada lay an estimated 600,000 acres of scattered slash, most of it inflammable pine.

The states affected took immediate measures to guard against fire. In hurricane-swept areas, woodlands were closed to entry. Lookout towers were rebuilt and telephone lines were reestablished. Through signs, broadcasts, press releases, the public was made aware of the acute fire danger.

Action by the federal government was taken almost simultaneously. Crews of the WPA cleared brush from roads and from the vicinity of buildings. In a short time, close to 40,000 WPA men were transferred to these emergency projects and remained on them throughout the winter. Forty CCC camps within the hurricane area were also assigned to the task of fire-hazard reduction.

By order of the President, the U. S. Forest Service was assigned the task of coordinating government activities to reduce the fire menace. In April, 1939, the Forest Service was also permitted to develop its own program of fire-hazard reduction on private lands by a Congressional deficiency appropriation of $5,000,000. This grant was to remain available until June 30, 1940, and required that federal expenditures must be matched by the states in which they are made.

One hundred and ten commuting crews, usually of 20 men each, were organized by the Forest Service throughout the hurricane area. In addition, where remoteness and fire danger made it necessary, substantial camps were built and manned with 50 men each. Nineteen such camps were constructed.

Photo by U. S. Forest Service
Hurricane logs in Morse Pond, Southbridge, Mass.

Work projects were rated on a basis determined by the state foresters of New England. Priority of treatment was ascribed first to the reestablishment of communication for fire protection and the replacement of lookout towers; second, to the opening of existing roads; third, to the opening of existing fire lanes; fourth, to the clearing of hurricane slash from buildings and villages where human life was endangered; and fifth, to the clearing of slash lying within 50 to 100 feet of all roads, fire lanes, railroads, lakes, or other areas of concentrated use or travel. Additional work was sanctioned in gridironing or completely disposing of the high hazard in large slash areas wherever such work was considered necessary to insure public safety.

In disposing of the hurricane slash, piling and burning is the standard method used by the field crews. During periods of the year when the ground is wet or snow-covered, small fires are built and the brush fed to these fires as it is cut.

During the dryer seasons, hurricane slash it cut and piled compact between two or four wood stakes. Such piles are built usually 6 to 8 feet long, 4 to 6 feet high, and 4 to 6 feet wide, the size depending largely upon the amount of overhead canopy and the distance brush must be carried. Burning is delayed until winter, or if it must be done during the spring, fires are lighted at night.

The work accomplishments of fire-hazard reduction crews begin to assume considerable proportions. On November 30, 8,896 miles of road and fire lane were opened to permit traffic. Of the other essential projects, in which work was done around dwellings, villages and areas of concentrated use or travel, 157,011 acres of slash were cleared. What seemed to be a task of almost incredible magnitude following the September hurricane now appears to be an orderly project with a visible end. Of the total work load considered essential, about 50 per cent was completed by November 30.

When large forest fires break out, as they did last spring, the federal resources of men and equipment are placed at the states' disposal. The Forest Service has much fire-fighting equipment available, scattered strategically throughout New England. There is an abundance of hand tools, stand-bys like axes, Pulaski tools and council rakes. Other equipment like back-pack pumps and power pumps makes use of the numerous streams of the region.

Now that the federal and state fire-fighting forces in New England have had a number of opportunities to effectively pool their resources of experience, man-power and equipment, they will be ready for the next fire season with a still greater degree of cooperation and efficiency.

(*Continued in next issue*)

New Diseases of Norway Maples

By P. P. PIRONE
New Jersey Agricultural Exp. Sta.
New Brunswick, N. J.

The Norway Maple is one of our most popular street and shade trees. In some eastern communities nearly half of the shade trees planted are of this species. Its value has increased considerably over that of elms since the outbreak of the Dutch elm disease in the metropolitan New York area and the infectious chlorosis disease in the Ohio River Valley.

Heretofore, aside from several leaf diseases such as scorch and leaf spots, the Norway Maple has been susceptible to only one destructive disease, Verticillium Wilt. This disease is characterized by the sudden wilting and dying of the leaves on one or several limbs. Following this, other limbs either directly above or below become affected, showing the same sudden wilting and death. The leaves usually fall, but sometimes hang on the dead branch. Some limbs or even an entire side of a tree is killed during the winter and fails to leaf out in the spring. Entire trees are often infected with the organism, resulting in sparse, small, sickly-looking foliage. In this case sudden wilting and death of the branches may not occur. Slime flux is present on many Verticillium-infected maples. This sour, foul-smelling sap which oozes out from cracks in the bark usually kills the cambium below. The most characteristic symptom is the discoloration in the sapwood and even in the xylem if infection has been present for more than a single year. This discoloration is in the form of bright green streaks in recently-invaded wood, becoming bluish-black and brown in many of the older tissues. The presence of this bright green discoloration is a positive diagnosis of wilt.

Photos by N. J. Agric. Exp. Sta.

Closeup of Norway maple with bark peeled away, showing discoloration of wood produced by P. cambivora infection

CONTROL OF VERTICILLIUM WILT

Norway Maples showing general and severe infestation by the Verticillium fungus are usually beyond help. Recovery from mild cases, however, has been observed many times following liberal applications of high nitrogenous fertilizers. Such treatments of Norway Maples have been successfully executed on a large number of maples both by shade tree men and commercial arborists.

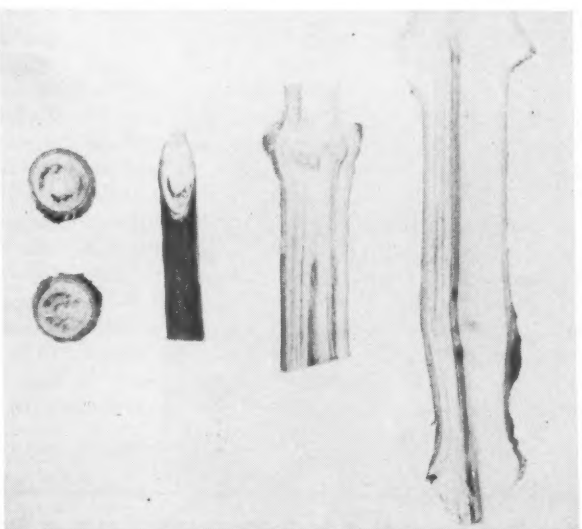
SOME NEW THREATS

Within the last two years, what appear to be two new diseases of Norway Maples have been reported as prevalent in eastern United States. Oddly enough, these appear to be two distinctly different diseases even though they are caused by fungi belonging in the same genus.

In New Jersey during 1938 and 1939 about two hundred maples succumbed from infection by one of the new diseases. An early symptom of the disease is a thin crown resulting from a decrease in the number and size of the leaves. Trees die within a year or two following this period of weak vegetative growth. Another, more striking symptom is the presence of cankers at the base of the trunk near the soil line. The inner bark, cambium, and often the sapwood are reddish-brown in the cankered area. Death occurs when the cankers completely girdle the tree.

Isolations from cankered and discolored areas yielded a fungus identified by Dr. C. M. Tucker, University of Missouri, as *Phytophthora cambivora.* In the opinion of Dr. Tucker, this is the first time that this species has been isolated from any host in the United States. Pathogenicity of this fungus has been established; it produced typical symptoms on 24 artificially inoculated trees ranging from 3 to 10 years old; in all cases it was successfully reisolated. Infection resulted only when trees were wounded just before the inoculum was applied; no infection occurred when the fungus

(*Continued on page* 15)



Norway maple twigs showing greenish discoloration in the wood, typical of Verticillium wilt disease

Discoloration of wood on ten-year-old Norway maple produced by inserting a bit of P. cambivora fungus underneath the bark (one month after inoculation)

Is the Chestnut Coming Back

By S. W. Bromley

Bartlett Tree Research Laboratories
Stamford, Conn.

Twenty years ago the chestnut blight fungus, *Endothia parasitica* ((Murr.) P. J. and H. W. Anderson), had passed its peak of destruction in southern New England and had left in its wake practically all the large trees of the American chestnut (*Castanea dentata* Borkh.) lifeless from their tops to the ground line.

The feeling current at the time was that the American chestnut had been swept out of existence. The wind-blown spores of the deadly disease in uncomputable numbers filled the air to such an extent that agar culture plates exposed on the tops of New York City's tall buildings far from any chestnut trees would quickly show the characteristic growth of *Endothia.*

Many of the blighted trees immediately sprouted, only to have the sprouts killed back to the ground within the next few seasons. For many years other sprouts kept appearing which met the same fate. This indicated, however, that the tree roots were still alive and that the disease apparently could not cause injury below the ground line. Here and there root sprouts would develop far from diseased and decaying stumps. Some of these root sprouts began to grow into young trees. It was hoped by many that some of these root sprouts or the seedling trees, which were developing from the nuts produced by the previous old trees, might possibly show a greater resistance to the disease than that exhibited by the original trunks. Hopes, however, dimmed as one by one these seedlings and root sprouts began to go. That was the condition ten years ago.

The fate of the American chestnut has been in the balance during the past decade—and still is, but I think that it may be definitely stated that within the past few years there have been certain hopeful signs—just a few, but still sufficient to raise a little optimism in the hearts of the lovers of this grand old American tree.

Photo by Dr. Rush P. Marshall

American Chestnut with blight canker caused by Endothia parasitica

I will simply cite several observations of the past few seasons for what they are worth. The first to call my attention to the possibility that the scales might not be so unevenly balanced against the chestnut was Mr. Abraham Hatfield of New Canaan, Conn., who has been carefully watching for the past 15 years the development of American chestnut trees on his property at Vista, N. Y., near the Connecticut line. On August 2, 1936, I made a survey of his trees. On September 19, 1939, three years later, I revisited the same area and found that many of the trees were still blight-free. Of the 67 trees examined—up to 22 feet in height and 3 inches in diameter—35 showed no cankers whatsoever, 21 were healthy in appearance but showed some evidence of the disease on the bark, and 11 were dead or dying from lesions then present. Mr. Hatfield was positive that the American chestnuts in this area were more numerous and growing to a larger size than was the case ten years ago.

Is it possible that with the passage of time the disease is losing something of its virulence or are the trees themselves becoming more resistant? May it not be a combination of the two factors at work? Of course, the factor of disease escape should be given recognition.

I cite another very extraordinary example. Near Wilmington, Del., on July 13, 1939, I was shown an American chestnut sprout about 38 feet tall growing from an old stump. This sprout was nearly 9 inches in diameter and had been affected by *Endothia parasitica* but the lesions were healing over. There were numerous burrs on the tree. The tree stands on the estate of Mr. J. Thompson Brown at Montchanin, Del. Mr. Brown stated that the sprout was at least fifteen years old, possibly seventeen. A number of years ago he planted a chestnut grown on this sprout and the resulting tree is about 2½ inches in trunk diameter.

Furthermore, there are on our Laboratory grounds at North Stamford, Conn., a number of American chestnut sprouts and seedlings which have managed so far to survive the blight era and are now 12 to 20 feet in height. Two of these bore chestnuts this season—burrs which were filled out and nuts as sweet and edible as those I recall as a boy when "chestnutting" was a favorite autumn diversion. The flavor of the chestnuts on these two trees was apparently unimpaired by the nearby Chinese chestnuts which had offered possibilities of cross pollination. One of these trees, however, shows the presence of the Endothia canker and may not long survive.

While it may be as yet too early to predict the ultimate fate of the American chestnut, yet these observations appear to me to be hopeful, more so at least than was the case ten years ago.

SIXTEENTH NATIONAL SHADE TREE CONFERENCE
Book-Cadillac Hotel ▲ Detroit, Michigan ▲ Aug. 27-30, 1940

Alabama Gets Fourth

The Third Southern Shade Tree Conference came to a most successful conclusion February 24th after a three day session at the University of Florida at Gainesville. Over one hundred entomologists, botanists, arborists, foresters and park executives—from scattered points of the eastern half of the United States —were in attendance. Of these, eighteen were members of the National Shade Tree Conference.

The diversified and interesting program, which was enthusiastically received, included the presentation of twenty papers on pertinent shade tree subjects. The afternoon of the second day was featured by an excellent field demonstration of large tree moving equipment, power sprayers and tree feeding equipment. The spraying demonstration featured a contest between machines of the leading manufacturers, while the moving of two large live oaks and two palm trees, over forty feet in height, furnished plenty of excitement.

Evenings were given to business meetings of the Southern Shade Tree Conference and the National Arborists' Association and to visiting the various trade exhibits. Included in the educational exhibits was the photographic collection of the National Shade Tree Conference.

At the business meeting on Friday evening the conference members opened discussion for affiliation with the National Shade Tree Conference. It was voted to continue negotiation with officers of that group.

President R. M. Weakley of Warren, Pennsylvania and West Palm Beach, Florida, was reelected president of the Southern Shade Tree Conference at the annual business meeting.

Mrs. T. M. Francis, Birmingham, Alabama, was elected vice-president, succeeding Mrs. Harry M. Griffin of Daytona Beach, while Professor Harold S. Newins, director of the University's School of Forestry, was reelected secretary-treasurer.

Members voted to hold the next Southern Shade Tree Conference in the State of Alabama in February, 1941. Either Birmingham, Auburn or Mobile will be selected as the conference city. Gomer D. Evans of Birmingham was elected chairman in charge of local arrangements.

Seventh Western Conference — Los Angeles In May

If hard work and interest mean anything, the Seventh Western Shade Tree Conference should be the banner gathering in this productive series to date. The local committees have worked tirelessly and the increasing interest and inquiry leads to the conclusion that the interest in tree preservation and planting which has made such tremendous strides in the past few years, is to result in a splendid show of numbers next month—May 23-25.

Headquarters and general assemblies will be in the Mayfair Hotel, W. 7th Street, Los Angeles.

In charge of exhibits is W. S. Rowland, Peck & Wadsworth, Inc., 8541 W. 3rd St., Los Angeles. Local Arrangements, Ross O. McIntire, City Forestry Department, City Hall, Los Angeles. Fred Roewekamp, president of this Seventh Conference, extends a cordial invitation to all Park Superintendents, Cemetery and Golf Course Superintendents, and Arborists to attend the sessions in the Mayfair Hotel, as well as the demonstrations of equipment which will be held in Elysian Park.

The tentative program prepared by Prof. R. W. Hodgson follows:

THURSDAY SESSION

Chairman: F. W. Roewekamp

9:00-10:00—Registration of members and visitors.

10:00-10:15—Address of welcome: Mayor Bowron.

Address of Welcome: Mrs. Fred V. Watson, President Los Angeles Board of Park Commissioners.

10:15-10:30—Response: F. W. Roewekamp, President Western Shade Tree Conference.

10:30-12:00—Two Papers:

(1) Civic Values Which Result From the Proper Use of Shade Trees, by Lawrence Pritchard, Asst. Director of Coordination, Univ. of S. C.

(2) What the Los Angeles Park Department is Doing in Planting of Street and Shade Trees, by Frank Shearer, Los Angeles Park Commissioner.

1:30-3:30—Shade Tree Clinic. Conducted for the special benefti of the layman and the general public. Subject: The Selection, Planting and Care of Shade Trees. Chairmen to be selected.

(1) Recommended Shade Trees.

(2) The Planting and Care of Young Trees.

(3) Pest Control, Pruning and Management.

(4) Special Problems.

(*Continued on page* 18)

We are sorry we can't name everyone in this group at the Third Southern Shade Tree Conference, but from the looks of that front row the "Yanks" had things their own way

Safety In Pruning

Hidden decay in weakened branches, unexpected brittleness of certain woods, structurally weak forks due to bark seams, etc., are only a few of the dangers that the Arborist is protected against by making use of Safety Swings and Ropes. The use of the Swing Rope was developed as a safety measure, but it was not long before its great value as an aid in climbing was recognized. It contributes safety, comfort and dexterity to the climber. By allowing the rope to support his weight and steady his balance, his hands are free for work and he is able to distribute his weight and go out on branches which, without the rope, would not be safe. Instead of shinneying up and down the branches above ladder height, the climber becomes skilled in crotching his rope in a suitable leader from which he can raise and lower himself or pendulum to locations as necessary and often swing from one tree to another.

Swings, Saddles and Belts of various designs have been developed for climbers to wear and to which the swing rope is attached. A good swing must be safe, durable and comfortable. An important safety feature is that the part of the swing to which the rope is attached must support the rope in a way that there are no sharp angle bends over metal hooks, eyes, etc., because this greatly reduces the strength ratio of the rope.

It is also imperative that waist and leg loop straps are of proper width. Very wide straps cause chafing and discomfort at the climber's crotch. Vertical straps at the sides are a great help because they prevent the leg loops from slipping down in back of thigh and cause binding discomfort when walking, climbing or when not actually *sitting* in the swing. The leg loops should be so constructed that they cannot come together and cause pinching between the climber's legs. The metal fittings should be made of drop forged nickel steel to guard against the possibility of crystalization and breakage when put under sudden strain. One of the most essential features of a desirable swing or saddle is that *the climber can put it on while he is on the ground* and then climb comfortably to the point where the swing rope should be crotched, *rather than having to step into a swing after reaching this hazardous location high above the ground.*

—C. L. Wachtel

TREE PRESERVAT

Tree Wound

By PAUL E.
Ohio Agricultural Exp. Sta.

The idea that tree wounds should be covered with some type of dressing is ancient. Early authors in writing of trees mention "plastering wounds with mud" to prevent decay. We still believe, as the early horticulturists did, that wounds on trees should be treated with some type of dressing to keep out rot-producing fungi until healing is complete.

Wounds on trees, like wounds on animals, are avenues through which infections of underlying tissues may occur. Heartwood in a tree is dead wood and is very susceptible to decay. Decay may also develop in the sapwood which is living, although sapwood is much more resistant than heartwood. As long as the bark of a tree is intact the wood underneath is protected. Many times, however, the protective coat of bark is injured and wounds opened up through which infection may take place. Broken tops caused by wind and sleet, frost cracks, pruning operations, fire scars and wounds due to various other agencies all leave openings in the bark.

Fig. 1—A small branch was removed, leaving a stub which became infected and decayed. Moisture collected in the wound and a frost crack developed. It is not known how much rotten wood is inside the tree now. All this would have been prevented if the branch had been properly removed and the wound covered with a good dressing.

All wounds should be properly shaped so that no stubs are left and so that the flow of sap will be continuous to the cambium all the way around the wound. Wounds over one inch in diameter should be protected with a dressing. Neglected small wounds often result in unsightly defects and pave the way for serious decay. (Fig. 1).

An ideal wound dressing must have several qualifications. It must protect the exposed wood against rot organisms over the period of months required for healing. It must be non-injurious to the cambium, which is the part of the tree that forms callus to heal the wound. Several months may be required for healing; therefore the dressing must be of such a nature that it does not melt and run in summer or become hard, crack and flake off during the winter. It must adhere well to fresh wounds and be easily applied in both summer and winter and, since the treatment is usually applied to ornamental shade trees, it should not be too unsightly.

Numerous compounds have been used as tree wound dressings, none of which can be called perfect. The very fact that so many different compounds are recommended is evidence that the ideal dressing has not been found. If such were the case, every one would be agreed on the same material. Paints or paint-like materials have been generally used, but are often only partially satisfactory. Thin penetrating paints go into the wood well, but usually do not prevent checking and cracking of the exposed surface. These cracks may extend deeper than the dressing penetrates. Moisture collects in them; they become excellent points of entry for fungous spores and rot soon sets in. Some paints with an oil base are difficult to apply to green wounds because they do not spread well on moist surfaces. Materials which are highly fungicidal usually cannot be used, because they injure the cambium and re-

VATION PRACTICES

Wound Dressings

PAUL E. TILFORD
Wooster, Ohio

tard healing. The margin of safety between a material that will prevent rot and not injure living tissue is small, and the selection of an effective but safe

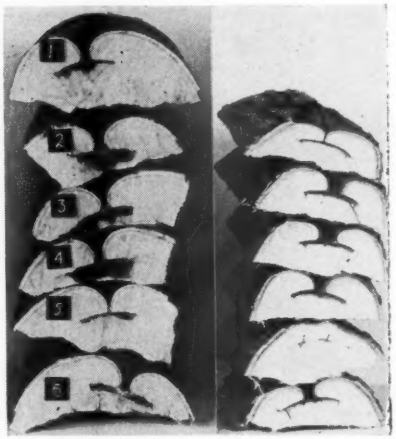


Fig. 2—Cross sections through wounds three and one half years after treatments were made. On the left maple and on the right hickory. No. 1, no treatment; Nos. 2, 3 and 4, Bordeaux paints; No. 5, asphaltum dressing; and No. 6, a non-asphaltum dressing.

wound dressing is more of a problem than it would seem at the outset.

For several years the writer has been making experiments comparing different wound dressing materials, the object being to determine the most satisfactory type of dressing. Common shade and forest trees, such as maple, oak, hickory, elm, poplar, ash and wild cherry, growing in a farm woods, were selected. Elliptically shaped wounds of uniform size were made on the trunks of the trees by using a pattern and removing both the outer and inner bark down to the sapwood. Six to eight wounds were usually made on a single tree 10 to 15 inches D.B.H. This made it possible to compare different materials on the same tree. The size of the wounds has been measured each year to determine the rate of healing; in some cases trees have been cut down and cross sections through the wounds studied to see if rots had developed underneath the dressings. (Fig. 2.)

A complete discussion of the results would require much more space than is available here. Only some of the main points will be mentioned.

Asphaltum dressings, which are free of injurious substances, have increased consistently the rate of healing. All other materials have either not affected the rate of healing or have retarded it. Asphaltum paints with very much creosote in them have shown some retarding effect, although a half and half mixture of asphaltum and creosote was not nearly as injurious as was anticipated. Bordeaux paint, which often has been used as a wound dressing, consistently retarded healing. Lead paints and varnish seemed to have no effect on callus formation.

In many instances it was difficult to say which materials were most effective in keeping out rots. As a rule dressings which promoted the most rapid healing and which kept the wound covered and prevented checking gave the best protection. Dressings known to carry a fungicidal material are not always effective in keeping out fungi. After the dressing

(*Continued on page* 17)

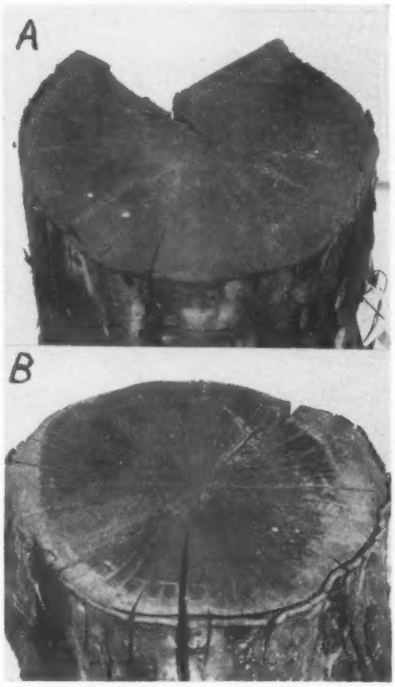


Fig. 3—(a) Block of apple wood exposed to the weather for one year after treatment with an asphaltum dressing which was thick enough to give a good covering. (b) Block given the same treatment except a thin asphaltum dressing was used.

Killing Stumps

Mr. H. D. Bruce of the California Forest & Range Experiment Station has been carrying on a series of experiments with chemicals as a means of killing stumps of sprouting trees and shrubs along roadsides or on firebreaks. He reports in a recent mimeographed bulletin that sodium chlorate has proved most effective and reliable as a poison. It is white, crystaline, water-soluble salt, which can be purchased from chemical supply houses for 9c to 10c a pound. It is used as a solution prepared by dissolving one pound of the salt in one gallon of water. (Approximately a 10% solution.) The following method of eradication is about 95% effective on tree and scrub oaks and will probably work as well on many other sprouting species. There is little or no seasonal difference noted, but success of the first application sharply declines with stumps over 25 inches in diameter due to greater difficulty in preparing them.

The method is simple and an average workman can treat from 4 to 8 stumps in an hour. A gallon of the solution will treat from 6 to 10 stumps of moderate size. The small number of stumps which resprout are easily killed with a second application of the solution. The following steps are suggested:

1. *Desprouting.* Chop all sprouts off at the ground to gain access to the stump.

2. *Unearthing.* Remove soil or duff from around the stump to a depth of 3 or 4 inches to expose all budding and live portions including any large radial roots.

3. *Hacking.* Hack lightly through the bark completely around the stump below the ground level where new sprouts may develop. Leave chips in place to retain the poison. Hacking is the most important operation and *should be thorough.*

4. *Spraying.* Saturation of the cut surfaces with the chlorate solution is all that is required. Use of a portable hand sprayer is recommended.

The following *precautions* are emphasized: (a) The solution may be poisonous to animals if taken internally in moderate amounts. (b) Clothing moistened with sodium chlorate should be *kept moist* until washed. If dried it may ignite. (c) Direct the spray on live tissue of the stump only; not on dead, punky wood as chlorate on fine, dry organic matter may ignite spontaneously. (d) Do not smoke around chlorates or use them during hot, dry weather.

WOODBRIDGE METCALF,
Forestry Notes

APRIL PARK MEETING

Dale Griggs, Program Chairman for the California Association of Park Administrators, has arranged with Dr. Bonner of the California Institute of Technology in Pasadena, for a two hour tour and lecture of the laboratory and experimental displays relating to the Institute's work on Vitamin B1. This will take place at the Association's April 26 meeting in Pasadena. Members will meet at Calif. Tech at 10 a. m. Later a luncheon will be held in conjunction with the Garden Clubs of Southern California. At the business meeting the annual election of officers will be voted.

Goldenrain

(*Koelreuteria paniculata*)

Edited by L. C. CHADWICK
Ohio State University

The Goldenrain - tree, *Koelreuteria paniculata*, is a native of China, Korea and Japan and is a small tree to about thirty feet at maturity. It is upright, spreading, nearly as wide as high. The brownish branches are rather coarse and stout, bearing very attractive compound leaves. The fact that the leaves are sometimes twice compound and coarsely toothed adds additional points of identification. The Goldenrain-tree is one of the most attractive small trees in flower, producing large, broad and loose panicles of yellow flowers in July. These flowers are especially attractive because they are produced well above the foliage; thus they are provided with the dark green background of the foliage. The fruit is a brown, inflated pod to about one and a half to two inches in length. It adds considerable to the attractiveness of the plant during the winter months.

Koelreuteria paniculata is not very particular about soil but will thrive in alkaline conditions. It prefers sun, stands drought and hot winds very well, and is comparatively free of insects and diseases. In cold winters the terminal twigs may be injured to some extent but good trees have been observed as far north as

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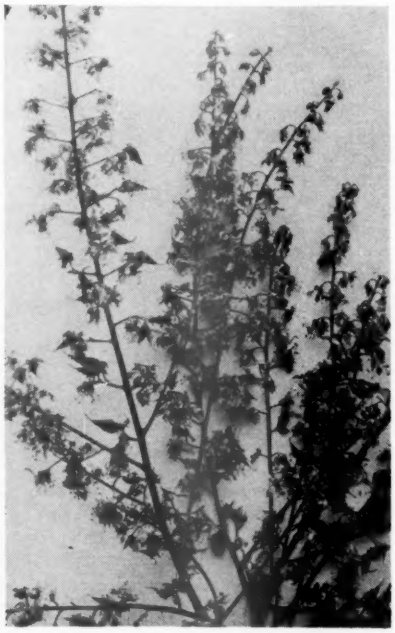

Photos courtesy New Harmony, Ind., Commercial Club

Flower panicles of the Goldenrain Tree

Courtesy of The Davey Tree Expert Co.

A fine specimen of Goldenrain in full foliage

Fruit pods and foliage

Shreveport — The Red Bud City

By BOB CUNNINGHAM
Lambert Landscape Co.
Shreveport, La.

Other Southern cities would do well to take notes from Shreveport, Louisiana, which is fast becoming known as The Redbud City of America. And other civic, garden club and like organizations could take a tip from the Shreveport Beautification Foundation, Inc., the civic division of the Shreveport Chamber of Commerce, which has been the motivatnig force behind this particular phase of a city's growth in charm and beauty.

The Shreveport Beautification Foundation, Inc., was organized under the auspices of the civic division of the Chamber of Commerce in the fall of 1937, its objects and purposes being: (1) To beautify the City of Shreveport and surrounding territory and to encourage the beautification of individual homes and gardens, streets, parkways, highways, parks and playgrounds. (2) To promote a systematic planting of native flowers, shrubs and trees, and to encourage the addition of city parks and the extension of the city park system. The foundation is governed by a board of directors, duly elected officers and appointed committees. From its inception there has never been any intention that the foundation's work should supersede or take over any work already being carried on by other organizations interested in objectives similar to its own.

Membership in the foundation is of three types: Individual at $2 per year; sustaining at $25 per year, and life at $50. The board of directors may also vote honorary life membership in certain instances. The standing committees of the foundation are: Membership, planning, planting, publicity, garden tour and flower show.

THREE OBJECTIVES RECOMMENDED

Three major objectives were recommended by the planning committee and adopted by the board of directors early in 1937. These were: First, the beautifying of the city generally with concentrated attention being given to the drive around Cross Lake, the goal in connection with the drive being to plant 10,000 redbud trees over a five-year period ending 1941-42; second, conducting a spring garden tour, in order to give local citizens and visitors an opportunity to see the many well-planned gardens in the city; third, sponsoring and holding of an annual flower show to encourage the growing of flowers by local citizens.

How well the planning committee's objectives, backed up by the hard, cooperative work of the other standing committees, worked out is demonstrated by the fact that in 1937 twenty-two hundred redbud trees were planted along Cross Lake Drive, 2,000 more trees were planted during December, 1938, and the end of December, 1939, found several more thousand trees planted along the rim of the lake. Trees for planting have been donated by individuals, landscape companies, floral shops, commercial clubs and others. Labor in connection with planting has been furnished through the road committee of the Caddo Parish Police Jury. The Louisiana Highway Commission has cooperated by lending its landscape engineer to superintend the staking and planting of the trees. The first annual spring garden tour was held on March 19 and 20, 1938. Eight gardens, owned by outstanding citizens of Shreveport who were civic-minded and generous, were opened to the public for a two-day period. The second annual spring garden tour was held on April 22 and 23, 1939, at which time eight other gardens were opened to visitors. More than ten thousand visitors were present at the first garden tour and the attendance at the second show was equally good. The dates for the 1940 Tour are March 16-17.

The first annual flower show was held on May 14 and 15, 1938, in the municipal auditorium. There were sixteen professional florists, landscape artists and business firms represented in the exhibits, in addition to the 1,500 individual exhibits, on display at the show. March 24, 25 and 26 were the dates for the second annual flower show, again held in the municipal auditorium.

PROGRAM PROVES STIMULATING

While the progress the Beautification Foundation, Inc., has made in carrying out its own aims and objectives is worthy of the highest commendation and emulation, the very fact that the organization exists and that it is striving toward an aesthetic ideal has encouraged individuals to pick up the banner whose slogan is "Make Shreveport 'The Redbud City of America.'" Thousands of redbud trees have been planted in the three-year period just passed by individuals and by the owners of public buildings. Kindred spirits have been drawn closely together in striving to attain a worthwhile goal and new consciousness of the power of harmony has been aroused. Civic pride has been fostered. A native and natural resource—the graceful, colorful, beauteous redbud tree—has been taken hold of by efficient hands in order that it may be nourished and preserved for future generations. A thing of beauty is a joy forever, and the South particularly, could profit by the example of this charming little city in Northwest Louisiana.

Goldenrain

(*Continued from preceding page*)

Detroit, Cleveland and Geneva, New York, in the midwest and east.

Propagation of the Goldenrain-tree is easily accomplished by seed stratified over winter in moist sand and peat and sown in the spring. It also can be propagated by root cuttings and by layering of small plants.

While this small tree is used mostly for home ground planting, it can be used in suburban sections as a small street tree planted between the curb and the sidewalk, or in the center boulevard strip. The parkway strip should be at least six or eight feet wide for good results. While the Goldenrain-tree will not be extensively used for city planting, it does have limited possibilities and gives a variation from more common small trees used. It is best used as mentioned as a small lawn tree.

"RAIN FORESTS"

The dense coastal forests of the Northwest which are preserved in the Olympic National Park, Washington, sometimes are erroneously termed "rain forests."

Scientists of the National Park Service point out that "rain forests," strictly speaking, are found only in tropical countries. The so-called rain forests of the temperate zones of Australia, South America and Japan, are not predominantly coniferous like those of the Olympic Peninsula.

Parasites of the Elm Leaf Beetle

By STANLEY E. FLANDERS
Univ. of Calif. Citrus Exp. Sta.
Riverside, Calif.

The elm leaf beetle (*Galerucella xanthomelaena*) is well known as a serious pest of the elm in North America. It was introduced from Europe at some time prior to 1838, when it was recorded as injuring elms in the vicinity of Baltimore, Maryland. Since then it has spread to the west coast, from southern California to Washington.

In Europe, the elm beetle appears generally to be held in check by several species of parasites. One of these is a small black "wasp" (*Tetrastichus xanthomelaenae*), which feeds and develops within the eggs of the elm leaf beetle. Another is a fly (*Erynnia nitida*), which feeds and develops within the larval and adult stages of the beetle. This fly is somewhat smaller than the common housefly, but similar to it in appearance.

At intervals during the past twenty years, the Bureau of Entomology and Plant Quarantine of the U. S. Department of Agriculture has introduced these parasites into the Eastern States in an attempt to bring about their establishment, but without success.

The most promising of these parasites in Europe is the parasitic fly *Erynnia.* The life history of *Erynnia* is nicely adjusted to that of its host.

In the spring, soon after the larvae of the elm leaf beetle begin feeding on the leaves, the adults of *Erynnia* appear, making short flights from leaf to leaf, depositing their eggs on the beetle larvae. An egg-laying female may live for a week and deposit over a hundred eggs, one to each beetle larva. The eggs hatch immediately after they are deposited and the maggot quickly bores into the body of its victim. Most of the maggots in the spring generation of *Erynnia* larvae develop rapidly and destroy their host in a few days. The life cycle (egg to egg) may be as short as 24 days. Several partial generations may occur during the summer and fall but most of the maggots of these generations overwinter within the body of the adult beetle. That is, instead of developing rapidly after they enter the host larvae, they remain more or less quiescent for from 6 to 8 months while the host undergoes its metamorphosis into the adult form and hibernates. In the spring, when the beetle comes out of hibernation, the maggot resumes development and emerges from its host as an adult fly. The life cycle (egg to egg) of an overwintering *Erynnia* may extend over a period of 10 months.

On the west coast of North America, the elm leaf beetle is parasitized by a native fly, *Aplomyiopsis galerucellae.* Although this fly is simiar in appearance to *Erynnia,* it is different in habit. It develops only in the elm leaf beetle larvae. Only males have been obtained, however. This indicates that the elm leaf beetle is not a completely suitable host.

In 1932, on the east coast, a native wasp-like parasite was discovered which destroys large numbers of the beetle. G. L. Griswold, of the U. S. Bureau of Entomology and Plant Quarantine, found large numbers of the pupae of the elm leaf beetle at Danvers, Massachusetts, being destroyed by the parasite *Tetrastichus brevistigma.* A survey revealed that this parasite was distributed throughout the northeastern part of the United States.

Tetrastichus brevistigma feeds and develops within the pupa of the elm leaf beetle. It passes through one complete generation and two to three partial generations a year, and overwinters as larvae within the dead pupae of the beetle, according to Paul A. Berry of the Bureau. It reproduces without mating; the males are very rare. Sometimes 50 to 80 per cent of the pupae of the elm leaf beetle may be found parasitized by *T. brevistigma.*

Effective control of the elm leaf beetle by this parasite is doubtful, particularly when other conditions are favorable for the beetle.

INTRODUCTION OF PARASITES INTO CALIFORNIA

For the past seven years the University of California Citrus Experiment Station, in cooperation with the Bureau of Entomoloby and Plant Quarantine of the U. S. Department of Agriculture, has been engaged in introducing into California the parasites of the elm leaf beetle. In selecting suitable sites for the colonization of the parasites, the University has had the cooperation of the State Department of Agriculture and the County Agricultural Commissioners.

In 1933, two shipments of the egg parasite *Tetrastichus xanthomelaenae* were received from Europe. Adults from these shipments were released near Fresno. A similar egg parasite (*Tetrastichus* sp.) attacks the eggs of the Oriental elm beetle (*Galerucella maculicollis*) in Japan. A shipment of this parasite was received in each of the years 1934, 1936, and 1938. Although both of these parasites successfully develop in the eggs of the European elm beetle in the laboratory, they have not yet been recovered from the areas where they were colonized by the thousands.

The life cycle of these parasites is completed in 24 days, at a temperature of about 70 deg. F. Each beetle egg contains enough food for the development of one parasite. The contents of the egg are consumed in about 7 days after the parasite egg is deposited within it.

In July, 1934, two shipments of the pupal parasite *Tetrastichus brevistigma* were sent to California from the Melrose Highlands U. S. Laboratory in Massachusetts. Over 18,000 adult parasites were colonized at Orangevale, Visalia, Fresno and Port Costa. In September, 1934, it was recovered from beetle pupae collected at Port Costa. *T. brevistigma* now occurs in abundance, from Bakersfield to Orangevale.

In April, 1939, a shipment of the parasitic fly (*Erynnia nitida*) was sent to California from Europe. Fourteen females and 28 males survived the trip. Through propagation in the laboratory, a total of 31 mated females became available for liberation. These were colonized at several points in the vicinity of Stockton; 11 were released in May; 16 in June; and 4 in August.

The reproduction from these liberations was remarkable. Elm leaf beetle larvae collected in June from the colonized areas yielded *Erynnia.* Percy Wright, Deputy Agricultural Commissioner of San Joaquin County, reported observing adult *Erynnia* flying about at the colonization points. In December, 1939, 10 per cent of several hundred overwintering elm leaf beetles taken from crevices in the bark on elm trees were found to be parasitized by *Erynnia.*

The economic effect of these introductions on the elm leaf beetle in California is still uncertain. Nevertheless, the prospect of some decrease in the seriousness of this pest is very favorable.

The situation in the vicinity of Stockton this summer may tell the story.

THRU the MICROSCOPE

By DR. C. J. HUMPHREY

PEACH MOSAIC: An up-to-date discussion of this virus malady of peach and nectarines in the West by Stout (1) classifies the important symptoms in five general groups, according to the season and part of tree affected. In certain peach and nectarine varieties the large showy pink petals become streaked or blotched in striking mosaic patterns and may sometimes become crinkled or dwarfed. In the absence of petal symptoms growth of part or all of the tree may be markedly retarded in early spring, and this may persist well into the summer, with many leaves falling. But by late summer or autumn some trees may become almost normal in appearance, although not a true recovery. The early leaves are variously flecked or blotched with yellow and green, with the yellow markings frequently closely associated with the midribs or lateral veins. Fruit symptoms usually occur one to two months after setting, the surface becoming rough or bumpy. The fruits are commonly dwarfed and may ripen several days later than usual. The twigs may not attain normal length, have shortened internodes, and hence appear stubby, thick, or swollen, with profuse branching.

Trees of any age are attacked and no varieties are completely immune. There are other naturally occurring mosaics of almond, apricot, plum and prune in the same general areas but these are not a factor in the spread of peach mosaic. The general method of infection is not definitely known although the disease is readily transmissible by grafting.

Since the virus is deep-seated and well distributed in the wood, pruning out of diseased limbs is not sufficient and eradication and destruction of the trees is the only remedy. The virus not being in the soil, new trees can safely be replanted in the same holes.

VASCULAR WILT OF ALBIZZIA: Hepting (9) gives further report on the destructive disease known for the past eight years in North and South Carolina, Virginia and Georgia, and previously described from the Soviet Union in 1920. The leaves wilt rapidly and fall, death following usually within a year. A brown ring forms in the recent sapwood of roots, trunk and branches. This contains a brown gummy substance that plugs the water-conducting tissues. The causal fungus belongs to the Elegans group of *Fusarium*, and is named *F. Perniciosum*. Infection is thought to enter the roots from the soil, but it is not definitely established whether it may enter through trunk or branch wounds. Diseased trees are doomed and no practical way to prevent spread of the epidemic within diseased areas is known. Pruning wounds and tools should be disinfected as a precautionary measure.

CROWN CANKER OF DOGWOOD: This was found for the first time in Massachusetts, at Amherst, by Gilgut (10) in June, 1939. It is caused by *Phytophthora cactorum*, and is severe on the western end of Long Island.

WILT OF TREE PAEONIA: Harris (11) reports this prevalent in the San Francisco Bay region since 1932. The causal fungi, two species of *Coniothyrium*, also attack roses. Symptoms are a water-soaked lesion encircling the stem and causing the growth above to wilt and collapse. Effective control has been secured by pruning out infected stems and spraying with ammoniacal copper carbonate.

POPLAR DISEASES: A new disease of three species of Populus caused by *Neofabraea populi* has been found by Thompson (12) at Ontario, Canada. It first appears as small depressed areas in the bark frequently with a swelling at the margin and a vertical split in the center of the lesions. Older cankers, ranging from 4 to 6 inches in length, are elliptical, girdling the stem with or without callus formation. In a transverse section of a canker the wood is brownish.

A common leaf-spotting fungus of poplars in North America, *Septoria musiva*, has been observed by Bier (13) causing a destructive canker of *Populus* hybrids in Canada. Girdling lesions occur on the stem and branches and numerous new branches form from adventitious buds. Leaf spotting occurs throughout the crown, without defoliation. Cankers originate in the bark of twigs of the current year, the fungus entering through mechanical wounds, lenticels, stipules and leaf petioles. Diseased bark is usually blackish, with yellowish or white areas. Girdled branches usually die during the first growing season, the infection then spreading to the main stem, where the perennial cankers develop and ultimately kill the tree during its fourth or fifth year of growth.

CHERRY DISEASES: A blight of *Prunus serotina* seedlings under natural conditions in Georgia and Arkansas has been observed by Dunegan (14) since 1924. Up to 62.5 per cent of seedlings counted in one area on April 4 were diseased. The causal fungus, *Sclerotinia seaveri*, appears each spring about the time the second pair of true leaves unfold. The first symptom is a brown water-soaked region near the tip of the stem, followed by a characteristic drooping. Infection spreads from the stem into the leaves through the petiole and midrib, the leaf finally assuming a bleached gray color. When the fungus reaches the ground line the plant dies.

Culture and inoculation tests made by Wilson (15) with the two bacteria *Phytomonas cerasi* and *P. syringae*, causing cherry and lilac blights, indicate that the two organisms are identical and *P. syringae* should be the name applied to *P. cerasi*, *P. utiformica* and *P. prunicola*.

MAPLE DISEASES: A comprehensive bulletin on the injection of hard maple saplings artificially inoculated with the wilt fungus (*Verticillium*) has recently been issued by the Davey Tree Expert Company (7). The experiments were started in 1936. The test trees were nursery grown, 18 to 20 feet high, and 1½ to 2 inches in diameter. Fifty trees were under test, with ten untreated. Two kinds of inoculum were used: mycelium and spores inserted under the bark of young twigs were unsatisfactory; infected plugs driven into the trunks produced infection after 29 months extending in one case 4½ inches above the plug and 5¾ inches below it, although no wilt symptoms developed.

After the fungi became established six different chemicals or vaccines were introduced into the trunks. Some were readily accepted; others resisted. Thymol caused no apparent injury. Brilliant green produced severe trunk injury around the injection point and stimulated bark tissues. Phenyl mercuric nitrate killed the cambium and inner bark tissues for considerable distances above and below the injection hole. Malachite green first caused severe burning of the foliage and ultimately killed the trees. Dry boric acid caused very severe trunk injury and intensified leaf scorch. The vaccine was definitely resisted but caused no injury. The general conclusion was that the fungus found conditions less favorable for growth in the treated trees.

Howard and Caroselli (8) report a bleeding canker in Rhode Island caused by *Phytophthora cactorum*. The characteristic symptom is a reddish ooze from small fissures in cankers on the trunk and scaffold branches, the lesions often with an olive green margin. A toxic substance is produced which causes wilting of the leaves and branch die-back. Injection of a di-nitro-cresol compound gave promising results in control.

(1) Bull. Dept. Agr. Calif. 28, No. 3, p. 177. 1939; (2) N. Mex. Agr. Exp. Sta. Bull. 264. 1939; (3) Phytopathology 30, No. 1, p. 23. 1940; (4) Phytopath. 30, No. 1, p. 13. 1940; (5) Plant Dis. Reporter 24, No. 1, p. 13. 1940; (6) Phytopath. 30, No. 2, p. 130. 1940; (7) Bull. No. 7. 1939; (8) Phytopath. 30, No. 1, p. 11. 1940; (9) U S. Dept. Agr. Circ. 535. 1939; (10) Plant Dis. Reporter 24, No. 1, p. 25. 1940; (11) Phytopath. 30, No. 1, p. 8. 1940; (12) Mycologia 31, No. 4, p. 455. 1939; (13) Canad. Jour. Res., Sect. C, 17, No. 6. p. 195. 1939; (14) Phytopath. 30, No. 1, p. 89. 1940; (15) Phytopath. 30, No. 1, p. 27. 1940;

New Maple Diseases

(*Continued from page* 7)

was applied to unwounded maple bark. This does not prove, however, that wounds are essential, since infection may possibly occur through unwounded roots and then advance upward to girdle the trunk. Experimental work is being continued to determine whether infection can occur in this way.

Phytophthora cambivora is known to cause the ink or root rot disease of Sweet Chestnut (*Castanea sativa*) and beech in England and other European countries. In Europe, the disease is observed to be most serious under conditions of poor drainage or in shallow soils. Similar conditions appear to favor infection and spread of the Norway Maple disease in New Jersey. One of the most extensive infestations occurred where the soil in the vicinity of nearly 50 maples was under water for several days during the very wet 1938 growing season.

(*Continued on page* 16)

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New Maple Diseases

(*Continued from page* 15)

The *Phytophthora cambivora* disease of maples is readily distinguished from the Verticillium Wilt by the absence of green discoloration in the wood. Moreover, Verticillium Wilt is primarily a disease of the vascular elements and does not attack the bark and cambium.

Because the inner bark and cambium are destroyed, the chances of saving Phytophthora-infested maples are slim. For the present, eradication by burning offers the only means of keeping the disease in check. In initiating new Norway Maple planting programs, it is well to select sites that are well drained and aerated. Improving the soil drainage in the vicinity of growing trees might help to avoid conditions favorable for the fungus. Though this disease constitutes a threat to our extensive Norway Maple plantings, I believe there is no need for alarm. Phytophthora diseases on many plants break out in epidemic form some years and then become quiescent for some time. It is likely that the record-breaking rainy period during the 1938 growing season played an important part in bringing about the present outbreak.

BLEEDING CANKER OF MAPLE

Another Phytophthora disease has recently been reported as prevalent in the vicinity of Rhode Island by Dr. F. L. Howard and N. Caroselli of the Rhode Island Experiment Station. The causal organism, *Phytophthora cactorum,* attacks Norway, Sycamore, Red and Sugar Maples. The symptoms differ considerably from those produced by *P. cambivora* in New Jersey. Howard and Caroselli call the Rhode Island disease "Bleeding Canker," in reference to its most characteristic primary symptom, which is the oozing of sap from fissures overlying cankers in the bark. Infected inner bark, cambium, and sapwood develop a reddish-brown necrotic lesion, which often exhibits an olive-green margin. They report that the fungus produces a toxic substance, which causes wilting of leaves and die-back of branches as secondary

(*Continued on page* 18)

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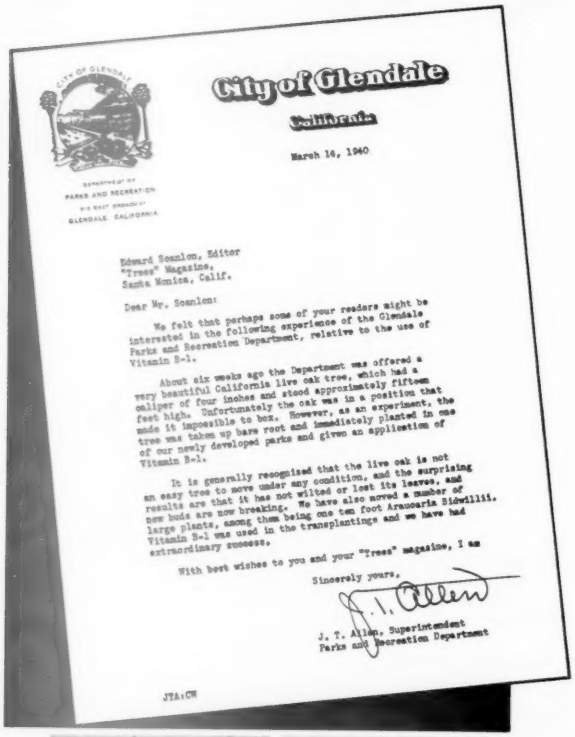

City of Glendale
California

March 14, 1940

Edward Soanlon, Editor
"Trees" Magazine,
Santa Monica, Calif.

Dear Mr. Soanlon:

We felt that perhaps some of your readers might be interested in the following experience of the Glendale Parks and Recreation Department, relative to the use of Vitamin B-1.

About six weeks ago the Department was offered a very beautiful California live oak tree, which had a caliper of four inches and stood approximately fifteen feet high. Unfortunately the oak was in a position that made it impossible to box. However, as an experiment, the tree was taken up bare root and immediately planted in one of our newly developed parks and given an application of Vitamin B-1.

It is generally recognized that the live oak is not an easy tree to move under any condition, and the surprising results are that it has not wilted or lost its leaves, and new buds are now breaking. We have also moved a number of large plants, among them being one ten foot Araucaria Bidwillii. Vitamin B-1 was used in the transplantings and we have had extraordinary success.

With best wishes to you and your "Trees" magazine, I am

Sincerely yours,

J. T. Allen, Superintendent
Parks and Recreation Department

JTA:CW

The California Live Oak mentioned in the letter

The Araucaria Bidwillii

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Authors and Books

P. P. PIRONE

Dr. P. P. Pirone received his Ph.D. from Cornell University in 1933. He was formerly Assistant Professor of Plant Pathology at Cornell and went to New Jersey in February, 1938, as Associate Professor of Plant Pathology, to succeed Dr. R. P. White. He is Secretary of the New Jersey Association of Nurserymen, a member of the Research and Membership Committees of the National Shade Tree Conference, Editor of Nursery Disease Notes, author of many bulletins, technical and popular articles on plant diseases and a frequent speaker over Station WOR and other stations of the Mutual Broadcasting System.

Dr. Paul E. Tilford began life on a farm in central Illinois. Graduated from Michigan State College in 1923. Master of Science degree obtained from Ohio State University, 1926, and the Ph.D. degree from the University of Wisconsin, 1935. For the past several years has been Associate Plant Pathologist at the Ohio Agricultural Experiment Station in charge of investigations on the diseases of ornamental plants and shade trees.

TRANSPLANTING TREES AND OTHER WOODY PLANTS. Tree Preservation Bulletin No. 9. A. Robert Thompson, Forester, National Park Service. Superintendent of Documents, Washington, D. C. Ten cents per copy. 59 pp.

Here is a splendid addition to the valuable Tree Preservation Series undertaken by Mr. Thompson several years ago. The bulletin is adequately supplied with very pointed illustrations. Much attention is given to important details that are time savers, and without which success is doubtful. Equipment, mulching, digging, pruning, planting, maintenance are a few of the subjects covered in a comprehensive easy-to-follow manner.

AMERICA'S GARDEN BOOK: Louis Bush-Brown and James Bush-Brown. Scribners, New York, 1191 pp., 150 illus., 1935. $3.50.

Should you be asked to suggest a general, all-inclusive garden guide—here is the answer. The authors have left nothing out. Their chapters dealing with trees are painstakingly correct and the adaptation charts will be found of great value to many professional people. There is a splendid chart of hedge materials; bloom calendars; an herb chart; ferns and shrubs for the woodland garden; the water garden. It is the finest book of its kind that we have seen, especially because it is also of value to the professional.

BOOK OF THE BROADLEAF TREES: Frank H. Lamb. W. W. Norton & Co., New York. 367 pp. $3.75.

Very much worthwhile and interesting to the point that it is difficult to lay aside, even for a meal. American broadleafs seem to predominate the list, although considerable space is devoted to the Eucalypts and Acacias of Australia. Being a lumberman, Mr. Lamb at times lapses into the vernacular, but not beyond the point of interest. Too, more emphasis could have been laid on the finer ornamentals with fuller descriptions of their features. A fine book profusely illustrated with well-chosen subjects.

ILLUSTRATED MANUAL OF CALIFORNIA SHRUBS: H. E. McMinn. J. W. Stacy, Inc., San Francisco, Calif. 689 pp. $5.

To those who work with plants in the West, particularly California, this new work by Professor McMinn will serve as an inexhaustible supply of valuable material as well as a reference for classifying native plants. It contains many fine photographs and countless very accurate drawings. This book has been sorely needed by plantsmen and botanists for a long time and the twenty years that have gone into the collecting of the material gives us a book that should be on everyone's shelf.

FEARSOME CRITTERS: H. H. Tryon. Idlewild Press, Cornwall, New York. 68 pp. $2.00.

Brings to life some interesting new stories on some of the "bogeys" that make up the folklore of loggers and lumberjacks.

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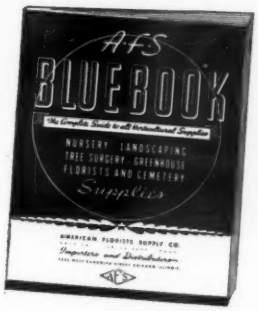

Wound Dressings

(*Continued from page* 11)

has dried a fungus may grow in moisture right on certain wound dressings which contain highly fungicidal materials. In my opinion the best materials to prevent infection are those which seal over the wound and keep it well covered until it is healed, regardless of whether the dressing contains fungicidal materials or not. Materials which dry out and weather off are not effective over the period necessary for healing, even though they may be very fungicidal when applied. Bordeaux paint is such a material. In these tests asphaltum dressings have given the best long time covering (Fig. 3) and have been better than others in keeping out decay.

There are two main types of asphaltum wound dressings available: first, asphaltum-water emulsions; and second, asphaltum cut with some solvent. The emulsions are non-injurious and stimulate callus formation but seem to dry out and weather off faster than the dissolved asphaltum type. Dressings of this latter type that contain no injurious substances and that are thick enough to give a good covering are believed to be the most satisfactory ones available at the present time. Any dressing can be tested during the growing season to determine if it is injurious by placing it on a fresh, elliptical bark wound on the trunk or branches of a tree; if non-injurious, callus will begin to form in a few days.

NEW HARMONY RAIN FESTIVAL

The town of New Harmony, situated in Posey County, Indiana, was the scene of two socialistic experiments. One of them began in 1814 when what had been virgin land was settled by the followers of George Rapp, a communistic society, which was succeeded in 1825 by an experiment of world-wide reputation—the Community of Social Equality organized by Robert Owen, a wealthy Englishman who attempted to bring Utopia to the lower Wabash. It was during the Owen regime that New Harmony became the home of the Golden Rain Tree, the tree that in the month of June showers its petals down until the ground beneath becomes a veritable Field of the Cloth of Gold.

The Golden Rain Tree, familiar to New Harmony residents as the "Gate Tree" because the first tree grew beside a gate, was introduced here during the Owen community period in 1828. The seeds were sent to New Harmony by William Maclure to his friend, Thomas Say, who planted them near the gate of the Maclure Mansion where, favored by a friendly clime, they grew and became sturdy trees.

From the first seeds planted there has come a prolific generation of Gate Trees until in New Harmony avenues have been planted and scarcely a lawn can be found that does not have one or more of these trees occupying points of vantage.

It is to celebrate the blooming of this tree that New Harmony holds its Annual Golden Rain Festival in June.

Maple Diseases

(*Continued from page* 16)

symptoms. In a recently published abstract (Phytopath. 30, No. 1, p. 11, 1940) Dr. Howard and Mr. Caroselli state that they have developed a simple injection technique, since the systemic nature of the infection indicates possible control by internal medication. They report that "a di-nitro-cresol compound has given promising results in laboratory and field trials, since it does not injure the healthy tissues of the tree and acts as an antitoxin and a pathogen-inhibiting agent."

Until more definite information is available, however, it is well to adhere to several important principles which have been tested over the years and have proved best in the control and prevention of tree diseases. These are (1) selection of well-drained soils high in organic matter whenever possible; (2) proper fertilization; (3) protection of pruning cuts, crotch injuries, frost cracks, and other mechanical injuries; (4) selection of species of trees suitable to the locality; (5) proper transplanting and early care; and (6) supplying sufficient water during droughts, especially when the roots have not yet become well established.

Western Conference

(*Continued from page* 9)

A round table discussion on each topic led by an expert with full opportunity for questions and answers.

3:30-5:00—Some Problems of Pruning with Possible Application to Street Trees, by Dr. W. H. Chandler, in charge of the Department of Subtropical Horticulture at U.C.L.A.

Famous California Shade Trees, by Prof. Woodbridge Metcalf, University of California at Berkeley.

7:30—Committee business meetings.

FRIDAY SESSION

9:30-11:30—Technical papers as follows:

(1) The Present Status of Research on Growth - Promoting Substances, by Dr. Bonner, California Institute of Technology, Pasadena.

(2) Pest Control Equipment Adapted for Use on Shade Trees, by A. M. Boyce, Citrus Experiment Station, Riverside.

(3) Insect Enemies of Toyon, by Dr. H. E. Burke.

(4) "The Physical Effects of Drought on Shade Trees." Willis W. Wagner, Senior Path., Bureau of Plant Industry, U. S. D. A., San Francisco.

12:30-2:00—Business session. Election of officers, committee reports, etc.

2:00—Meet at the hotel for field trip to see outstanding specimen trees and visit Elysian Park, where there will be a demonstration of equipment, also a demonstration in proper use of ropes for tree work.

6:30—Annual Dinner with plenty of entertainment, and *no speeches!*

SATURDAY SESSION

9:00—Leave the Mayfair Hotel promptly for U.C.L.A campus. Dr. W. H. Chandler, Chairman of the Day.

9:30—Assemble at U.C.L.A. Speakers to present papers as follows:

The Present Status of Oil Sprays for Shade Trees, by R. H. Smith.

Chlorosis of Eucalyptus Trees, by D. Appleman.

12:00-1:00—Luncheon at U.C.L.A. Cafeteria.

1:30—Tour of U.C.L.A. Campus and U.C.L.A. Botanical Garden

RAINFALL AND TREE GROWTH IN THE GREAT BASIN: Ernst Antevs. Published jointly by the Carnegie Institute of Washington and the American Geographical Society of New York. 97 pp. Maps. $3.00.

This study in two parts deals first with rainfall fluctuations for the past hundred years; second, the relation of tree growth to rainfall. There is a complete list of references and an Index.

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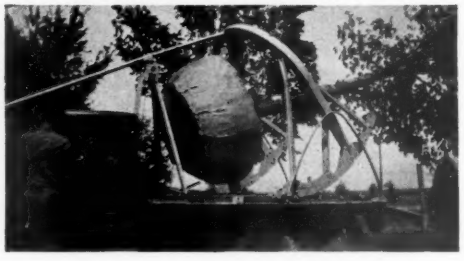

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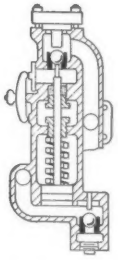

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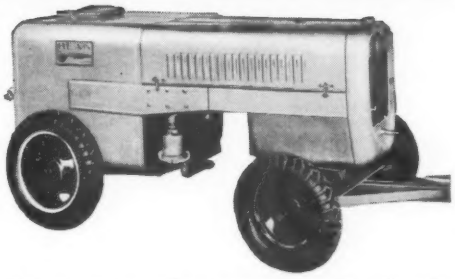

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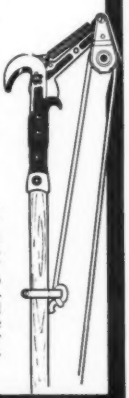

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